May 18, 1984

Dear Manufacturer: CD-84-8 (LDT, HDE)

SUBJECT: General Guidance Regarding the Durability Testing, Allowable Maintenance and Full Useful Life Provisions of the New LDT and HDE Regulations

On November 16, 1983, EPA published final regulations (48 FR 52170) applicable to 1985 and later model year light-duty trucks and heavy-duty engines. The regulations now in place for the 1985 and later model years give the manufacturers' responsibility for developing and implementing appropriate certification durability testing programs of their own design. These regulations also establish three separate service classes for heavy-duty diesel engines for the purposes of determining useful life. The manufacturers have been delegated the responsibility for determining the classifications for the engines they certify.

These regulations have greatly increased manufacturers' flexibility in implementing their certification programs. Prior to these changes, the certification regulations were spelled out in more rigid detail. Some flexibility has been available under the Abbreviated Certification Review (ACR) program. Generally, the ACR program has not changed the rigid requirements in the certification regulations. However, EPA has delegated responsibility to the manufacturers to make certain decisions for the Administrator in a number of situations where the regulations have required an approval by the Administrator. These decisions have been subject to audit by EPA to assure decisions have been made in a manner consistent with EPA policy. The new regulations have increased manufacturers' flexibility by both deleting some rigid requirements and in other cases by deleting requirements for any approval by the Administrator.

These regulations have not rescinded any of the delegations previously granted under the ACR program, although some of the previous delegations may now be irrelevant due to the increased flexibility of the new regulations. (For example, the regulations formerly required the Administrator to select durability-data vehicles or engines. Under ACR, we permitted the manufacturer to make these selections for the Administrator subject to EPA audit. While we have not removed the ACR

delegation, it is no longer relevant as the new regulations require the manufacturer to select vehicles, engines, sub-

systems, or components so that their emissions deterioration characteristics may be expected to represent those of in-use vehicles, based upon good engineering judgment.) We will update the ACR delegation list as time and resources permit. However, we do not expect these "irrelevant" delegations to create a problem in the interim.

We have received several comments and questions relating to the new areas of flexibility in the regulations. Enclosed is a discussion of several of those areas which we believe need additional clarification or expanded guidance. We encourage you to contact your certification team if you encounter or anticipate any implementation difficulties or have further questions regarding the new regulations.

Sincerely yours,

Robert E. Maxwell, Director
Certific ation Division
Office of Mobile Sources

Enclosure

Enclosure to Certification Division Letter No. 84-8 (LDT, HDE)

Questions Regarding the Durability Testing, Allowable Maintenance and Full Useful Life Provisions of the New Light-Duty Truck and Heavy-Duty Engine Regulations

1. Are manufacturers required to routinely submit prior to determining deterioration factors, the test procedures and determinations used in establishing the exhaust emission deterioration factors? How does this submission affect manufacturers' responsibility for the appropriateness of the resulting deterioration factors?

Paragraph 86.085-22(d)(2) applies to both light-duty trucks and heavy-duty engines. The paragraph states:

> "The Administrator does not approve the test procedures for establishing exhaust emission deterioration factors. The manufacturer shall submit these procedures and determinations as required in §86.085-21(b)(4)(iii) prior to determining the deterioration factors."

EPA will accept the routine submission of the information required by this paragraph at the time the manufacturer submits his application for certification rather than "prior to determining the deterioration factors." The existence of the word "prior" in this paragraph gives EPA the authority to request the information at an earlier point if we consider it necessary. This provision refers only to the submittal of information to EPA and does not constitute an approval requirement. Therefore, this provision does not conflict with or constrain the manufacturer's ability and responsibility to use good engineering judgment in determining deterioration factors.

2. What constraints are placed on manufacturers in developing and implementing their own durability program? In particular, how do the maintenance regulations impact this design and subsequent implementation?

Under 40 CFR 86.084-28, the manufacturer is responsible for designing its own durability program including establishing the test methods and determining the vehicles, engines, subsystems, or components to be tested to determine deterioration factors appropriate for the engine family-emission control system. Although the regulations now permit the manufacturer more flexibility in designing and conducting durability test programs, some constraints still exist. Deterioration factors

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must be developed based on test data and the test program must be designed and conducted in accordance with good engineering practice to assure compliance "in actual use" for the useful life of the engine (40 CFR 86.085-23(b)(ii)). The objective of the test program must be to predict expected in-use emission

deterioration. Such program parameters as driving cycle and maintenance should be typical of or equivalent to expected in-use experience or should simulate such operating conditions so as to result in a prediction of in-use emission deterioration.

Paragraph 86.085-25(b) establishes specific constraints on the maintenance performed during durability testing. In actual durability testing, the manufacturer may perform or simulate the effects of the maintenance allowed under §86.085-25(b) or a lesser level of maintenance as it determines appropriate for its particular design and expected in-use experience. The end result must be the submission of deterioration factors representative of what a typical production vehicle should expect under normal in-use operating conditions and receiving the maintenance allowed under §86.085-25(b).

Under the provisions of §86.085-38 (Maintenance Instructions), the manufacturer is required to include in its owner-operator manuals, instructions for all the maintenance the manufacturer has determined appropriate under §86.085-25(b), as discussed above. As stated in §86.085-25(b)(1)(v)(A), EPA has determined that only the maintenance specified in §86.085-25(b)(1)(ii) and (iii) is technologically necessary emission-related maintenance. This determination was based on expected performance under normal operating conditions. Since the durability program is supposed to simulate in-use operation and since the resulting deterioration factors are supposed to predict in-use deterioration, all normally necessary maintenance is to be included within the certification durability program. This normal maintenance can be included directly, that is at the prescribed intervals and in the same manner to be recommended to the owner and service personnel, or at other intervals or in other manners which accurately reflect the emissions deterioration impact of expected (recommended?) in-use maintenance. However, EPA recognizes that under abnormal operating conditions, additional emission-related maintenance may be necessary. For example, additional maintenance may be necessary to counteract abnormal operating conditions such as extended operation in extremely dusty or very cold environments. Specific regulatory provisions are included to handle such abnormal operating conditions. Under §86.085-38(e) and (f), a manufacturer may recommend such additional maintenance. In order to qualify for additional maintenance recommendations, EPA must approve the language used to differentiate this maintenance from normal maintenance. We will approve language that clearly indicates that the additional

maintenance is only required during abnormal operation and describes the nature of the abnormal operation.

In summary, the discussion of technologically necessary emission-related maintenance provided in §86.085-25(b) defines the maximum acceptable emission-related maintenance that may be performed during a manufacturer-designed test program and, with the exception for abnormal operating conditions, the maximum acceptable emission-related maintenance that may be recommended to the customer.

3. Since manufacturers are fully responsible to design and conduct a technically appropriate durability program, why do the revised regulations (§86.085-25(b)) still require EPA approval of unscheduled maintenance for light-duty truck and heavy-duty engine durability-data vehicles and engines?

In developing the revised regulations, EPA did not focus on the need for continuing the Administrator's approval of unscheduled maintenance for light-duty trucks and heavy-duty engine durability-data vehicles and engines. In the near future, we will consider the modification or deletion of this approval requirement. In the meantime, we believe it is technically appropriate and consistent with the rest of the regulations and our ACR program to include manufacturer approval of unscheduled maintenance in our list of delegated responsibilities. Effective with this letter, we are delegating such responsibility to manufacturers. Thus, for light-duty trucks and heavy-duty engines, manufacturers shall, using good engineering judgment, decide whether to approve unscheduled maintenance during their durability evaluation. In cases where the regulations require specific criteria for the performance of unscheduled maintenance, the manufacturer shall determine whether such criteria are applicable given the design of his individual durability program. The manufacturer shall make all such determinations and decisions regarding unscheduled maintenance consistent with good engineering judgment. As with other delegated responsibilities, these determinations and decisions are subject to EPA review and concurrence. However, if the manufacturer uses good engineering judgment, implementation of these provisions under the ACR program should be no different than under alternative regulations which would have given manufacturers the full responsibility for approving unscheduled maintenance.

4. How should a manufacturer implement the alternative useful life determination provision?

Paragraph 86.085-21(f) provides that a manufacturer who believes that the specified useful life periods are significantly unrepresentative for one or more engine families may petition the Administrator to provide an alternative useful-life

period. This petition must include the full rationale behind the request, together with any supporting data and other evidence.

This paragraph of the regulations was included to provide the ability to request alternative useful lives in response to comments submitted during the rulemaking that argued that unique situations might exist that cannot appropriately be handled by the prescribed classifications. At this time EPA has no specific situations in mind which we would consider unique enough to warrant an alternative useful life. Hence, we are unable to provide guidance regarding the form and extent of the information which must be submitted to provide an adequate basis for an alternative useful life. However, in preparing its petition for an alternative useful life, the manufacturer should review the analyses in the rulemaking docket which led to the determination of the existing useful lives. The petition should present relevant information distinguishing the manufacturer's design from the norm. In particular, the manufacturer must provide convincing evidence that the assigned useful life value is inappropriate before EPA will consider its request for a specific alternative useful life. The petition should also identify the requested alternative useful life and include substantiating information in detail.

In considering a request for an alternative useful life for heavy-duty diesel engines, EPA will first review the manufacturer's class determination to see if the engine appears to be properly classified. Section 86.085-2 designates three primary intended service classes for diesel heavy-duty engines: light, medium, and heavy, and heavy-duty diesel engines. These classes are defined on the basis of various criteria, such as intended vehicle use and engine operating characteristics.

Section 86.085-21(b)(4)(iii) specifies that in an application for certificate of conformity for a diesel heavy-duty engine family the manufacturer must:

a. Use the guidance in Section 86.085-2 to determine

which primary intended service class best represents the majority of the sales of the engines in the family.

b. Provide a statement of the primary intended service class, along with an explanation of why that class was selected.

c. Request the certification of the family in only the one primary intended service class.

The regulations make the manufacturer (not EPA) responsible for designation of the primary intended service class for each

heavy-duty diesel engine family. The regulations do not include a provision for approval of the manufacturer's classifications by EPA.

While it is the manufacturer's responsibility to classify its engines, EPA will not approve an alternative useful life which appears to be based on a misclassification of the engine. For example, we would not approve an alternative useful life of 110,000 miles for a medium heavy-duty diesel engine which technically could just as appropriately be classified as a light heavy-duty engine. In such a case, the request would be denied. The manufacturer can then reclassify the family or redesignate the useful life period. We expect that most manufacturer concerns about an appropriate useful life for a heavy-duty diesel engine can be resolved by proper selection of the engine's primary intended service class.

Finally, if the petition for an alternative useful life is approved for either gasoline-fueled or diesel heavy-duty engines or light-duty trucks, the manufacturer must (under paragraph 86.085-35) include this period on the emissions label.